

PATENT APPLN. NO. 10/585,814  
SUBMISSION UNDER 37 C.F.R. § 1.114

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REMARKS

Claim 1 has been amended to include the following additional limitations (indicated by underlining):

(i) "insert member coupled to a bracket spindle and configured and arranged to transmit a load to a sprocket through said outer shell",

and

(ii) "fiber-reinforced plastic layer which is provided outside said outer shell to form an outermost surface of the crank".

Support for limitation (i) is found in paragraph [0019] of US 2008/0224440A1, the publication of the present application (hereinafter: "the '440 A1 publication") ("... Besides, a force can be transmitted ... to a bracket spindle ..."). Support for limitation (ii) is found in paragraph [0066] of the '440 A1 publication ("... since this fiber-reinforced plastic layer is ... is required therefore ...").

A new claim, claim 20, has been added to the application and defines that the fiber-reinforced plastic layer is a winding of a tape substrate or a sheet substrate, wherein 30% or more of reinforcing fibers are oriented at an angle of 45 to 135 degrees relative to the connection line. Support for the limitations

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recited in claim 20 is found in paragraphs [0021] and [0023] of the '440 A1 publication.

The claims of the application as amended are patentably distinct over the combination of Kraeft, U.S. Patent No. 2,350,468, Bezin, US Patent 4,811,626, and Valle, Japanese Patent JP 2003-72666, used in the Final Office Action dated March 12, 2010, to reject the claims of the present application as being unpatentable under 35 U.S.C. § 103(a). Applicants note that the references below to the disclosure of Valle are to the corresponding U.S. patent publication of Valle, US 2003/0019324 A1 (hereinafter: "the '324 A1 publication").

Valle does not provide a proper motive or reason to modify the device of Kraeft as modified by Bezin to obtain a crank as recited in claim 1 and will not result in a crank having the characteristics recited in claim 1.

First, regarding limitation (i), Valle clearly describes that the core 10 covered with the tape 36 does not contribute to torque transmission between the pedal shaft and the bracket spindle (refer to paragraphs [0019] and [0024] of the '324 A1 publication). In contrast, in the present invention, the fiber-reinforced plastic layer covers the connection line of the outer shell subject to transmission forces so as to improve the rigidity and the allowable

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dimensional accuracy of the crank (refer to the paragraph [0018] of the '440 A1 publication). Accordingly, Valle does not disclose and does not suggest a tape covering any members subject to torque transmission force for the purpose of improving rigidity and allowable dimensional accuracy.

Regarding limitation (ii), this limitation (ii) further clarifies the structure of the fiber-reinforced plastic layer and provide additional benefit on such a structure. Because the fiber-reinforced plastic layer forms an outermost surface of the crank, design freedom can be increased to improve the exterior appearance of the crank product, e.g., by drawing a pattern on the fiber-reinforced plastic layer. None of the citations discloses or remotely suggests providing such a structure for improving the exterior appearance of a crank product while enhancing its rigidity.

Third, a person of ordinary skill in the art would not have looked to the teachings of Valle to modify the device of Kraeft as modified by Bezin to provide at least a part of the outer shell covered with a fiber-reinforced plastic layer for the purpose of providing the structural characteristic required for a crank as asserted in the Final Office Action of March 12, 2010. Valle in paragraph [0019] of the '324 A1 publication describes:

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"core 10 does not present structural characteristics, i.e., does not transfer force or torque between the inserts 24, 26. The core 10 locates the inserts 24, 26 in a predefined position and forms a supporting and contrast surface during the lamination and moulding phases schematically illustrated in FIGS. 5 and 6. The term 'lamination' herein refers to the layering operations of the tapes 36 and the sheets 38 on the arrangement formed by the inserts 24, 26 and the core 10. This operation is used to direct the reinforcement fibres in the most suitable fashion to confer the required structural characteristics to the crank."

I.e., lamination is required in Valle to provide structural characteristics to the foam core 10, which is a pre-foamed plastic material not having required structural characteristics.

On the other hand, there is nothing in the art to suggest that the device of Kraeft as modified by Bezin would have required further modification to provide necessary structural characteristics or would have required lamination as disclosed in Valle. The purpose of the invention in Kraeft is to provide a lightweight construction which has the [structural] characteristics of one-piece crank hangers (as described in the background of Kraeft). Modification is not required.

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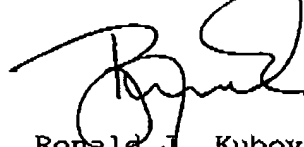
The Office has provided no evidence or reasoning to support a position that a person of ordinary skill in the art would have expected the device of Kraeft as modified by Bezin to require "structural characteristics required for a crank" as alleged by the Office and thus has not provided rationale required to support its conclusion of obviousness under 35 U.S.C. § 103(a).

An allowance of the claims as amended herein is believed to be in order and is respectfully requested.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,  
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